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Claims

1. Method for the preparation of starch particles in a two-phase system, which method comprises at least the following steps:
 - 5 a) preparation of a first phase comprising a dispersion of starch in water;
 - b) preparation of a dispersion or emulsion of the first phase in a second liquid phase, with the proviso that the second phase is not water;
 - c) cross-linking of the starch present in the first phase;
 - d) separating the starch particles thus formed.
- 10 2. Method according to Claim 1, wherein the second phase is a hydrophobic phase, which method comprises the following steps:
 - a) preparation of a first phase comprising a dispersion of starch in water;
 - b
 - 15 i) dispersion or emulsifying of the second phase in the first phase, such that an oil-in-water emulsion is obtained;
 - ii) inversion of the oil-in-water emulsion to a water-in-oil emulsion;
 - c) cross-linking of the starch present in the first phase;
 - d) separating the starch particles thus formed.
- 20 3. Method according to Claim 2, wherein the starch is completely or partially gelatinised before, during or after step b) ii).
4. Method according to Claim 2, wherein in step b) i) the hydrophobic phase:water ratio is 80:20 to 20:80, preferably 60:40 to 40:60.
- 25 5. Method according to Claim 2, 3 or 4 wherein the oil-in-water emulsion contains a surfactant.
6. Method according to Claim 5, wherein the surfactant has an HLB value of 8 to 20, preferably of 10 to 15.
- 30 7. Method according to Claim 5 or 6, wherein step b) ii) comprises raising the temperature of the oil-in-water emulsion until inversion takes place.

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8. Method according to Claim 5 or 6, wherein step b) ii) comprises the addition of a second surfactant to the oil-in-water emulsion, such that inversion to a water-in-oil emulsion takes place,
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9. Method according to Claim 5 or 6, wherein step b) ii) comprises the addition of a hydrophobic liquid to the oil-in-water emulsion such that inversion to a water-in-oil emulsion takes place,
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10. Method according to Claim 1, wherein the second phase is a water-miscible non-solvent for starch, which method comprises:
- a) preparation of a first phase comprising a dispersion of starch in water;
 - b) addition of the second phase to the first phase such that phase separation occurs;
 - c) cross-linking of the starch present in the first phase; and
- 15
- d) separating the starch particles thus formed.
11. Method according to Claim 10, wherein the water-miscible non-solvent for starch is ethanol or acetone, preferably ethanol.
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12. Method according to Claim 10 or 11, wherein the starch is completely or partially gelatinised before, during or after step b) or c).
13. Method according to one of the preceding claims, wherein the starch consists of partially modified starch.
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14. Method according to one of the preceding claims, wherein the starch content in the first phase is 1 - 50 % (m/m), preferably 5 to 25 % (m/m).
15. Method according to one of the preceding claims, wherein cross-linking is carried out with the aid of a cross-linking agent, which is preferably trisodium trimetaphosphate or epichlorohydrin.
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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1. (original): Method for the preparation of starch particles in a two-phase system, which method comprises the following steps:

a) preparation of a first phase comprising a dispersion of starch in water;

(B) b i) dispersion or emulsifying of a second phase, which is a hydrophobic phase in the first phase, such that an oil-in-water emulsion is obtained;

ii) inversion of the oil-in-water emulsion to a water-in-oil emulsion;

c) cross-linking of the starch present in the first phase;

d) separating the starch particles thus formed.

Claim 2. (currently amended): Method according to Claim [[2]] 1, wherein the starch is completely or partially gelatinised before, during or after step b) ii).

Claim 3. (previously presented): Method according to Claim 1, wherein in step b) i) the hydrophobic phase: water ratio is 80:20 to 20:80.

Claim 4. (previously presented): Method according to Claim 1, wherein the oil-in-water emulsion contains a surfactant.

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Claim 5. (currently amended): Method according to Claim 4, wherein the surfactant has an HLB value of 8 to 20, ~~preferably of 10 to 15.~~

Claim 6. (previously presented): Method according to Claim 4, wherein step b) ii) comprises raising the temperature of the oil-in-water emulsion until inversion takes place.

Claim 7. (previously presented): Method according to Claim 4, wherein step b) ii) comprises the addition of a second surfactant to the oil-in-water emulsion, such that inversion to a water-in-oil emulsion takes place.

Claim 8. (previously presented): Method according to Claim 4, wherein step b) ii) comprises the addition of a hydrophobic liquid to the oil-in-water emulsion such that inversion to a water-in-oil emulsion takes place.

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Claim 9. (original): Method for the preparation of starch particles in a two-phase system, which method comprises:

- a) preparation of a first phase comprising a dispersion of starch in water;
- b) addition of a second phase, which is a water-miscible non-solvent for starch to the first phase such that phase separation occurs;
- c) cross-linking of the starch present in the first phase; and
- d) separating the starch particles thus formed.

Claim 10. (original): Method according to Claim 9, wherein the water-miscible non-solvent for starch is ethanol or acetone, preferably ethanol.

Claim 11. (previously presented): Method according to Claim 9, wherein the starch is completely or partially gelatinised before, during or after step b) or c).

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Claim 12. (previously presented): Method according to claim 1, wherein the starch consists of partially modified starch.

Claim 13. (currently amended): Method according to claim 1, wherein the starch content in the first phase is 1 - 50 % (m/m), ~~preferably 5 to 25 % (m/m).~~

Claim 14. (previously presented): Method according to claim 1, wherein cross-linking is carried out with the aid of a cross-linking agent, which is preferably trisodium trimetaphosphate or epichlorohydrin.

Claim 15. (previously presented): Method according to Claim 1, wherein step b) i) the hydrophobic phase: water ratio is 60:40 to 40:60.

Application No. 09/869,706
Amdt. dated July 28, 2003
Reply to Office Action of March 28, 2003
Docket No. 2001-1209

ATTACHMENT:

Make of record the accompanying translation of
Dutch priority application Serial No. 1010926 filed
December 30, 1998.